WAR FINANCE AND THE PRICE LEVEL

I. INTRODUCTION

Most students of finance and taxation have had occasion, since the beginning of the war, to modify somewhat their conceptions of the effects of war and war finance upon the level of prices. For instance, the early doctrine that the use of bonds as a means of war finance was almost certain to be attended by inflation has been found to be based upon an assumption that experience has proved to be largely unwarranted—the assumption, namely, that the typical individual who wishes to buy government bonds will borrow from the banks the necessary funds, or, having purchased the bonds outright, will proceed to borrow upon them as collateral; and in either case continue his consumptive expenditures in unabated fashion.

The war has shown that funds borrowed for the purpose of purchasing Liberty bonds may shortly be repaid to the banks out of savings. Under these circumstances the banks temporarily advance the funds and thus increase the total volume of circulating medium; but as soon as individuals have paid their loans at the banks, the financing has been accomplished by saving, just as much as is the case when funds are raised by taxation. We have also learned that many a man of large means and many a corporation has temporarily borrowed the funds with which to pay taxes.

It is true that one Liberty loan was not wholly paid for out of savings before another was issued, or before new treasury certificates were placed with the banks. There necessarily tended to be considerable overlapping; and the banks were thus furnishing a permanent quantum of new currency derived from an extension of bank credits.

The other assumption, held by most of us,[1] that an individual who purchased bonds would be inclined forthwith to borrow upon these bonds as collateral, and continue consumption on the previous scale, has also not been borne out by the facts. To some

[1] See, for instance, the *Memorandum of Economists to Congress* in April, 1917.

extent the general public has borrowed on Liberty bonds as collateral and used the funds for consumptive purposes, but the percentage of bonds so used to the total held was undoubtedly very small.

While there have been these modifications in our general understanding of the situation, the view is still prevalent that the use of bonds was the prime cause of the increase in prices during the war, and that if the war had been financed more largely by taxation prices would have risen but little. The theory is that the method of war finance employed created a general increase in the quantity of the medium of exchange, an increase greater than the increase in the volume of goods, and that in consequence prices were forced to a higher level. The purpose of this article is to consider the price changes that took place during the war in the light of changes in the cost of production of goods rather than as a phenomenon associated with the volume of the medium of exchange in comparison with the quantity of goods to be exchanged. The analysis will be confined to the United States, where the maintenance of the gold standard was not imperiled.

Economic analysis of the price question has usually run in terms of exchange rather than in terms of production. This approach to the problem is attributable, I believe, to the tripartite division of economics, for purposes of analysis, into production, exchange, and distribution, wherein money is not discussed until the analysis of production has been completed. Money is thus conceived as an institution having to do mainly, if not merely, with the exchanging of goods; and exchange has usually been associated, implicitly if not explicitly, with the transfer of consumers' goods. After goods have been produced they must be exchanged, and the price level depends upon the volume of funds available for the making of such exchanges. Where producers' goods are brought into the analysis it is, still, always in connection with their transference from A to B—with the buying and selling, or commercial, end of affairs, rather than with the process of production. It is always exchange of goods that are already produced as compared with the quantity, etc., of the medium of exchange.

Professor Fisher, as is well known, conceives the price level to be something quite distinct from an average of particular prices. It is a level derived by a sort of automatic process of dividing the total number of units of goods to be exchanged by the total number of monetary counters available for exchanging them. In considering particular prices, however, Professor Fisher finds that the price will be high or low, depending upon the relation of demand and supply. His analysis of particular prices thus also runs in terms of exchange, of the value of goods already in the market awaiting sale. It has nothing to do with cost of production, except of course in so far as cost of production might be an underlying determinant of supply.

The purpose of this article is to study the price changes that occurred during the war in the light of the monetary cost of producing goods, and to endeavor to ascertain whether the expansion of bank currency was primarily cause or effect of the changes in prices. By coming at the question from the standpoint of the business man engaged in the production and marketing of goods, I believe it will be possible for us to gain a clearer conception of the price-making process and the forces governing the general level of prices than can be obtained by assuming that money comes into the problem only in connection with exchanging goods after they have been produced.

II. CAUSES OF INITIAL PRICE ADVANCES

We may take as our point of departure for a study of the rise in prices during the war the changes that early took place in the prices of iron and steel and other basic materials demanded by the war. Wheat will for the moment be omitted from consideration.

It will doubtless be agreed that the initial cause of the rise in prices of war materials was an extraordinary demand for a limited supply. Competitive bidding by competing governments and competing departments of the same government rapidly forced prices upward. This increase of prices began, of course, long before the United States entered the war. It is pertinent to

inquire at the outset if this initial increase in the prices of war materials was not a result of an increased volume of circulating medium. Could not this extraordinary demand have been made effective only by virtue of an expansion of bank loans?

The answer appears to be that these initial price advances were not necessarily dependent upon an expansion of bank loans. Whatever the method of war finance employed in Europe, the prices of basic war supplies purchased in the United States would have risen. If the funds required had not been borrowed by the European governments, either at home or from American banks, this would not have prevented competitive bidding by the several governments for these supplies, with the resulting advance of prices. The funds necessary would have been provided by a process of diversion from less essential enterprises. And, in fact, American supplies were not paid for exclusively by borrowed funds. They were in part purchased with gold and in part by the return of American securities. The making of purchases abroad and the bidding up of prices was no doubt facilitated by the expansion of loanable funds that occurred, but it would have eventuated sooner or later in any case. This analysis applies equally to the intensified demand for basic materials that followed the entrance of the United States into the war.

But even if the operation of forces affecting supply and demand had not raised the prices of war supplies, they would still have been raised. For it is recognized that if a maximum of war supplies was to be induced it would be necessary that high prices be guaranteed; hence the governmental policy of price control. It was recognized that costs would be high,[1] that the risks involved in new enterprises would be unusual, and that unless producers were assured a reasonable return above costs the additional production required would not be forthcoming; hence the system of contracts arranged on a cost plus percentage basis, or on modifications of this principle. It will doubtless be agreed that the controlling principle in this price determination was expenses of production in marginal establishments, and that the total volume

[1] Price control obviously had a double function. It was designed to prevent exorbitant prices as well as to insure additional production of war material.

of currency within the country had no bearing upon the establishment of these individual prices.[1]

The fixing of prices of iron and steel and kindred war materials at a high level promptly caused an increase in the expenses of production in all establishments using such materials. The cost of raw materials being increased because of the exigencies of war production, all manufacturers were compelled to pay higher prices for the materials which they needed. This increase in the cost of raw materials substantially increased the expenses of production of manufacturers in non-war, as well as in war, lines.

These increased expenses of production obviously required the manufacturers to sell to wholesalers at an increased price,[2] and the wholesaler and retailer in turn were accordingly compelled to advance their prices. It is apparent that if the manufacturer, wholesaler, and retailer respectively were to maintain the same volume of profits as before, each must raise his prices in proportion to the increased cost. It is also apparent that, like tariff duties, this process proves cumulative in its effect upon the final consumer. It should be noted, moreover, that if the manufacturer, wholesaler, and retailer were to maintain as consumers their former standards of living, they must raise the prices more than proportionally; for if they merely sought to maintain the same number of dollars

[1] But could the price increases that were due to the higher marginal costs of production of war materials have occurred in the absence of any increase in the volume of bank currency? That is to say, was an increase of funds necessary to permit the increase of prices? Conceivably not. For if all nonessential industry were curtailed and the funds used therein shifted—together with the capital goods and labor involved—to war industries, it is possible that the existing volume of funds would have been sufficient to finance the necessary volume of war production even on the increased-cost basis that prevailed. The answer to the question hinges upon whether the curtailment of nonessential production that was possible would have been equal to the expansion of war production. Whatever the fact in this connection may be, it is true that there is no theoretical reason why an increased volume of funds under these circumstances should be required. It is equally clear that under the assumptions laid down above it would be immaterial whether the funds needed by the government were obtained by taxation or bond issues.

[2] If the rise in the price level were an automatic process, affecting all commodities simultaneously, the advances in wholesale prices of commodities in non-war lines would have occurred at the same time as those in war lines. The truth is, however, that there was a considerable lag—sufficient in time to allow the increased costs to become effective. There was a still further lag in retail prices.

of profit, they would be, as consumers, in the same condition as salaried classes whose incomes remain fixed, while the level of prices advances. Accordingly there is a tendency, when prices are advancing, for each seller to raise the price more than proportionally—to advance the price by the same percentage on the higher as on the lower cost.[1]

It goes without saying that this advance in prices, at least so far as the retailer is concerned, is not made with any precision. The advance in particular cases may be disproportionate to increased expenses, and in others fail to compensate for the changes in cost. But, roughly speaking, the effect of the initial increase in the price of war materials is a rapidly cumulative increase in the prices paid by the general consuming public for all commodities whose manufacture requires the use of raw materials whose price has been raised because of war demands or the government's price-fixing policy.

INCREASED WAGES AND PRICE ADVANCES

Another factor working more or less simultaneously with the above, which tended to increase the monetary cost of production, was the increase in wage rates. The adoption of the cost plus percentage contract, and other systems of guaranteed profits, resulted in a rapid bidding up of wages by producers supplying war materials. The initial wage increases were not due to an increased quantity of funds already in the hands of the employers of labor; they are rather attributable to the fact that the offer of high wages was the only means of procuring the necessary labor supply and that the cost of labor was immaterial in view of the guaranteed profits; indeed, under the cost plus percentage system, the higher the cost of labor, the larger became the profits of employers.[2]

[1] There may also have been cases of increases in excess of this, though I should be much surprised if investigation would show that the profits of many middlemen more than kept pace with the increase in the cost of living of middlemen.

[2] The question may again be raised: Were not these high costs and consequent high prices facilitated by the loan method of war finance? Yes, they were, although, as will be shown later, they would have advanced under any circumstances. The present purpose is merely to show that the forces lifting prices were operating through costs.

The pace being thus set by war manufacturers, producers in non-war lines were compelled to pay higher wages in order to retain a labor supply. This trend toward higher wages was of course intensified by the general acceleration that was given to business activity, coupled with the growing scarcity of labor occasioned by the taking of men for the military establishment.

Another factor influencing the wage rate was the governmental policy of increasing wages as the cost of living advanced. This brings us to a consideration of the cost of foodstuffs.

The price of wheat would of course have been high, due to the operation of the forces of demand and supply, but, as in the case of raw materials, where price control was resorted to, the price was fixed high in order to induce the production of an adequate supply.[1] The high price of wheat led to the diversion of much agricultural land normally devoted to the production of other foodstuffs to the production of wheat. The result of this was to decrease the supply of other foodstuffs and thereby to raise their prices, in accordance with the law of supply and demand. It is not improbable, also, that in many cases inferior grades of land were used in the production of these foodstuffs. But whether or not this was true, the high prices of foodstuffs generally and the cumulative effect of the high prices paid to farmers as the food was passed through the hands of successive middlemen to the general public greatly increased the price of food to the consumer. It will be noted that while the price of wheat and other foodstuffs was increased at the farms because of the operation of demand and supply and government price fixing, it was increased in the hands of commission merchants, millers, bakers, and retailers because the expenses of production of these middlemen were increased.

When the general cost of living was increased, on account of the increased prices of foodstuffs and of a large range of manufactured commodities involving the use of iron and steel and other raw materials required in war production, the government deemed it necessary, in industries which were under governmental direction, to raise wages in proportion to increased living costs. At

[1] It might of course have been even higher if left unregulated.

the same time many employers, even though not compelled to raise wages materially by the forces of competition in the labor market,[1] nevertheless deemed it imperative under the circumstances to increase wages, either directly or indirectly, through the use of bonuses.

Wage increases thus became very nearly universal—though obviously far from uniform; and accordingly all branches of industry were compelled to incur substantially increased expenses of production. And everywhere there was a tendency for these effects to be cumulative because of the endeavor of each group of producers to maintain its own living standards by securing profits enough in excess of the former profits to offset the advance in the cost of living.[2]

It is worthy of note at this place that in war lines it was not usually necessary for producers to raise prices proportionally to the increase in wage rates and in the cost of raw materials, for the reason that in most establishments operation was so nearly at full capacity that the cost per unit remained relatively low, on account of the constant factor of overhead expenses. If it had not been for the increased operating expenses due to the increased cost of labor and raw materials, it is probable that in most lines the cost of production would have been substantially reduced during the first stages of the war.

The full operation of plants was moreover not confined merely to war production. In many branches of ordinary industry the demand was very large, owing to the increased purchasing power of war laborers. A factor bearing upon this situation in the second year of the war was the suspension of building operations

[1] In cases where the labor force could not readily be shifted to war industries.

[2] Professor Fisher thinks that he proves inflation to be the cause of the general increase of prices when he observes that prices have advanced in lines for which there was no war demand. With demand and supply unchanged an advance in price could—in Fisher's view—be due only to an increased volume of money and credit as compared with the quantity of goods to be exchanged. If the problem is approached from the standpoint of production rather than of exchange it is clear that there were no lines of industry in which expenses of production were not increased as a result of the war; and hence price advances in non-war lines need not be attributed to an increased supply of monetary counters.

and the low rate of increase in the number of firms. An increasing volume of business was in consequence confined to a relatively fixed number of establishments.

In the absence of these factors, which tended to reduce the cost per unit, it is probable that prices would have risen more rapidly than they did, in fact. It is doubtless true, however, that prices were raised more than was necessary in view of this operation at full capacity, with the result that profits were exceptionally high. Professor Friday's data with reference to the income of corporations during the war would seem to indicate that such was probably the case.

In the light of the foregoing discussion of the forces that were instrumental in increasing the costs of production pretty generally throughout the entire industrial system, the assumption in the classical statement of the quantity theory and in most of the literature of war inflation that the rise in prices is attributable to the offer of a larger volume of money for the same volume of goods seems to me to be quite unfounded.

It may be objected by some that, if there had been no "inflation," the increased prices in war lines would have been offset by decreased prices in nonessential lines, with the result that the level of prices would have remained unchanged. The argument is based on the assumption that the demand for nonessentials would decline and thus reduce their prices. The answer to this contention is, I believe, that, except temporarily, a lessened demand for nonessentials would not appreciably lower their prices. It would shortly curtail the volume of production; but the selling price of what was still produced would be based on cost. It would be the low-cost concerns that would survive; but with increased operating expenses—due to the advance in the prices of war materials and labor—it is doubtful if selling prices could be reduced even by the more efficient plants. Now this curtailment of nonessential productions would, no doubt, have been a national gain; but the present point is that it would not have prevented a rise in the general level of prices. It should be noted that the energy thus shifted to war production would not have reduced the

prices of essentials, because it would be operating at the margin, under conditions of high cost.[1] (See also note, p. 716.)

III. CAUSES OF INCREASED VOLUME OF CURRENCY

We may now turn to a consideration of the volume of liquid funds or circulating medium. It is obvious that a universal rise in prices would not have been possible (assuming an undiminished production) unless there had been an increase in the supply of liquid funds for the use of the productive process. Note that I say "for the use of the productive process" rather than for use in exchange. The purpose of thus stating it is to keep the emphasis still upon production; for I believe only by so doing can we gain a clear understanding of causal relationships.

The increased cost of raw materials and of labor necessitated an increase in the volume of both fixed and working capital required by war business, and an increase in the volume of working capital required by virtually all business. Whenever a new plant was constructed for the manufacture of war materials it cost substantially more in terms of money than in pre-war times; and this necessitated a larger amount of fixed capital than before. But since the amount of new construction was limited after the first year of the war, the increase in the amount of fixed capital required was relatively unimportant, as compared with the increase in the volume of working capital that was found to be necessary.

Every establishment which found the cost of raw materials higher, the pay-roll enlarged, and operating expenses generally increased, was obliged to employ a much larger volume of working capital than before. The increased output of all war establishments and of many plants devoted to ordinary production likewise necessitated an increase in the volume of working capital. The question therefore arises, How was this additional working capital

[1] Translating this argument into terms of Professor Fisher's formula, we would have $MV+M'V'$ remaining unchanged, but with P advancing. The necessary correctness of the equation is maintained by a reduction in T (the volume of trade). We have assumed the reduction to be in nonessential lines. Under the conditions that obtained, in fact, it is altogether probable that the volume of war production would also have been curtailed.

secured, and what is its relation to the volume of credit instruments that found its way into the channels of circulation?

This additional capital was derived from various sources. Much of the fixed capital that was employed early in the war in new industries and for extensions and improvements came directly from the commercial banks in the form of loans. The flotation of large Liberty loans seriously interfered with the ordinary investment market and necessitated an unwonted use of commercial bank loans for investment purposes.

The essentially war industries, such as shipbuilding, were financed by government funds which were acquired through the medium of tax payments and bond issues. As already noted, the banks temporarily advanced a considerable volume of these funds by means of credit extension, some of which proved to be more than temporary additions to the supply of available funds.

A very great source of expansion in the volume of liquid capital lay in the extension by the banks of loans for working capital to manufacturers engaged in the production of both war and peace goods, and to wholesalers and retailers generally. The increased amount of working capital required to conduct the same volume of business, occasioned by the increased cost of material and labor, together with the increased volume of business in practically all war lines, and in many peace lines, necessarily required these businesses to borrow much more heavily from the banks than customarily.

It will be noted that the only alternative to increased loans from the commercial banks was for these concerns to increase the supply of their own capital. This increased supply was to some extent forthcoming as the war progressed through the process of putting back a portion of the net earnings into the business. This process was, however, necessarily a lagging one; and temporary loans of large amount were required in any case. In fact, however, a business's own capital did not as a rule increase sufficiently to provide, after payment of taxes and subscriptions to Liberty bonds, the additional funds required. It will be noted also that in most cases corporations were debarred from selling additional securities because of the exigencies of government finance.

The evidence afforded by the accounts of borrowers is conclusive in showing that the additional working capital required was to a large extent provided by the commercial banks in the form of short-time loans which were indefinitely renewed—if not by the customer's particular bank, still by the banking system as a whole.

These loans were in part direct loans from the banks to their own customers, and in part indirect loans by banks through the intermediation of the commercial paper houses. Speaking generally, these loans were not completely paid off once each year, much less every two or three months, in accordance with the terms of their maturity.[1] They were in effect long-term loans. It was clearly understood that no business could perform its service in war production or in supplying the ordinary requirements of the people without a steady and constantly increasing supply of working capital with which to buy raw materials, meet pay-rolls, etc. Seasonal variations in the volume of loans required were also minimized.

These increased loans from the commercial banks necessarily resulted in lessening the margin of security ordinarily required by the banks. That is to say, where the ordinary ratio of quick assets to current liabilities was, say, two to one, the requirements during the war necessitated a reduction of this ratio to something less than two to one. This reduction in the margin of safety was however not necessary in all cases, because of the large profits in certain lines. And it did not seriously endanger the credit structure so long as business should continue active. Unusual circumspection was necessarily required on the part of the banks in the placing of the loans; but so long as they were made to industries that were indispensable to the winning of the war, there was little doubt that interest would be paid upon the loans and the indebtedness ultimately liquidated—granting of course the successful termination of the war and the eventual settlement of government obligations.

[1] The writer has elsewhere shown that this is a very common condition of affairs, even in ordinary times. See "Commercial Banking and Capital Formation," *Journal of Political Economy*, July, 1918, pp. 713–23.

INCREASED CURRENCY A RESULT OF RISING PRICES

It will be noted from the foregoing that the additional volume of circulating medium was chiefly a result rather than a cause of the increased prices.[1] The increased costs of operation resulting from the factors discussed above necessitated an increased volume of capital—mainly working capital—for the conduct of business, for the carrying on of the productive process.[2] Businesses, generally, were obliged to resort to the banks for the funds required.

It is important to appreciate that to the extent these additional funds were required for the production merely of the same volume of goods as heretofore it was a process of "inflation"—defining inflation as an increase in currency in excess of an increase in the volume of goods entering the market.[3] Such expansion, however, let it be repeated, was a result and not a cause of the increase in prices. But to the extent that the increased working capital was required for the financing of additional output in existing establishments the increased volume of currency was offset by an increased volume of goods. That is to say, funds borrowed from the commercial banks were thus used by business men in employing laborers who would otherwise have been idle; in producing supplies and materials that otherwise would not have been

[1] The statement of the Federal Reserve Board in its letter to the Chairman of the Senate Committee on Banking and Currency in August—subsequent to the writing of this paper—contends that the expansion of Federal Reserve Notes was the effect of advancing wages and prices, and not their cause. The Board does not appear to be so certain, however, that the credit expansion that occurred was not a cause of rising prices. Sir Edward Holden, of the Bank of England, also contends that the increase of currency has been a result rather than a cause of rising prices.

[2] By the productive process I obviously mean the production of raw materials, the manufacture of goods, and the marketing of these goods by middlemen. All these classes of business require working capital—much of which is always furnished by the commercial banking system. If one prefers to say that wholesalers and retailers are merely engaged in exchanging goods—a point of view which to my way of thinking ignores much of the essential function of marketing—he still must recognize that the production of raw materials and their manufacture into finished goods, all of which requires the use of money, is something more than an exchange process. It is passing strange, indeed, that monetary theory almost invariably implicitly assumes that money has to do only with produced goods, and that commercial banking functions only in connection with the exchange process.

[3] I prefer the word expansion, because inflation has a derogatory connotation which is not warranted in the present case.

produced; in hiring laborers who otherwise would not be working overtime to devote extra hours to the producing of supplies and materials that would otherwise not have been produced; in enabling factories which would otherwise have been idle part of the year or idle for some portion of the twenty-four hours, or working only at partial capacity, to run steadily throughout the year, to work extra shifts of labor, and to run at maximum capacity. To the extent, therefore, that borrowed funds were utilized in the creation of additional goods inflation did not result. This same condition obviously holds true where the government was acting as an intermediary in the supplying of funds for indispensable war production. It should be noted, however, that these new goods, whether financed by the government or privately, were goods produced on a high-cost basis. Hence there was an element of credit expansion even here; that is to say, more currency was required to secure this production than would have been the case under a lower price level.

In summary, we have been insisting that the forces leading to higher prices were operating in connection with the productive process, that high prices were necessitated by increased expenses of production due to certain initial price increases occasioned by the excessive war demands and the government's price-fixing policy. It is believed that the price phenomena of the war can be understood only by a consideration of the problem of production as it confronted the business men of the nation. And it is believed that the increase of bank credit must be regarded mainly as a result rather than a cause of the increased prices. All this is obviously not to argue that there was not an increase in the quantity, etc., of money as compared with the volume of trade. It does not attempt to disprove the mathematical equation of exchange; the analysis is merely intended to show how the adjustment of prices to a higher level was actually wrought out in the world of business. Nor does the analysis attempt to show that the value of the standard, gold, did not undergo a change; it is a truism that the purchasing power of the dollar declined. It does conclude, however, that the new level of prices was not a result of comparisons between the marginal utilities of produced goods and gold, or of an

automatic division of the number of monetary counters by the volume of trade. Higher prices were rather the result of the efforts of business men to adjust their-profit making activities to the economic exigencies of war.

IV. INCREASED PRICES AND PURCHASING POWER

We may now consider how it was possible for prices to be continually raised without a reduction in the purchasing power of the masses, and accordingly without checking the productive process. In so far as goods were sold to the government there was no limit to the prices which could be paid so long as the sources of government funds remained adequate. And government funds could remain adequate so long as business profits, due to the factors already considered, were large; so long as wages increased more rapidly than the cost of living,[1] and so long as the condition of bank reserves was such as to permit still further absorption of government bond issues by the banks. At the conclusion of the war there remained a very large volume of unused bank currency; that is, it was still possible for the banks to expand the volume of loans and deposit currency without endangering the convertibility of credit into cash and without going below the minimum reserve requirements as laid down under the Federal Reserve law.

On the other hand, the profits of industries supplying peace needs would be determined by the volume of peace demands, and this would be dependent primarily upon the rate of wage advances as compared with that of price increases.

The increase of wages during the war was dependent upon numerous factors. At the time of our entrance into the conflict there was a considerable volume of unemployment in the country and a great deal of part-time work. The first effect of the war was to decrease the volume of unemployment and thus to increase the purchasing power of the unemployed. A second effect was to increase the number of days per year worked by those who were already employed, thereby increasing their annual monetary income. A third result was to increase the number of hours worked

[1] Assuming, of course, that those having wage and profit margins could continually be induced to pay taxes or invest in government bonds.

per day, which, coupled with extra pay for overtime, further increased the workers' monetary income. A fourth was to draw into the wage-earning classes a bigger percentage of the family working force, thereby still further increasing the annual family monetary income. And a final effect was to raise wage rates. It is obvious, of course, that these increases did not occur in every line of industry, nor uniformly throughout the country.

Whether this increase in monetary income on the part of the laboring classes resulted in an increase of real wages depends upon whether prices increased more rapidly than family monetary income. It is probable that at least during the first year or so of the war the *family* income increased more rapidly than did the price level among many classes of laborers. Among others—those not affected by the war demand for labor[1]—the cost of living undoubtedly increased more rapidly than annual wages. And a reduction of the standard of living on the part of the salaried classes goes without saying. But for the country as a whole it is very probably true that the first year of the war, at least, showed an increased power of domestic consumption. Moreover, all the evidence that has come out of England on this subject indicates that the standard of living of the masses there substantially improved during the first year of the war. This is no doubt attributable to the fact that England entered the war at a time when there was a very large volume of unemployment and when the industrial system as a whole was running at far from maximum capacity.[2]

The increased wages for a time permit the laboring classes to assist in financing the war without an impairment of living

[1] Those not affected to some extent, either directly or indirectly, were not numerous; and they were chiefly in remote regions and in centers where the laborers owned their own homes and were thus deprived of the competitive advantage of potential mobility.

[2] This consideration of the factors entering into the wage question seems to me to discredit completely the customary assumption of the economist that since wage rates advance less rapidly than prices the laborer necessarily pays the cost of the war through reduced living standards. Ultimately, that is after several years of war, this undoubtedly becomes the case, but it is not necessarily true in the early stages of war. Annual family wages and not wage rates per hour or day or week are the determining factors in the wage question.

standards; hence for a time all sources of governmental revenue provide a ready flow of funds to the Treasury.

In the end, however, because annual wages cannot continue to rise as fast as living costs (unless wage rates are constantly increased) and because profits expand less rapidly after maximum production has been attained in all existing plants, a larger resort to bank loans becomes necessary. That is to say, as prices continue to advance the increased volume of working capital required by business to produce the war materials required must be procured in increasing proportions from the banks.

When bank reserves ultimately touch bottom, or rather when the superstructure of credit touches the top, a resort to depreciated paper currency is obviously the only further source for the necessary additional monetary counters required. This gets into circulation in the form of government payments to soldiers and producers of war supplies.

An obvious check upon the volume of financial instruments ultimately required by war, however, is the reduced volume of goods that can be produced after a large percentage of the working population has been transferred to the military establishment, and after the efficiency of the capital supply and the general economic organization has deteriorated.

This analysis of the wage question and of war-time profits serves to indicate the process by which an additional volume of money and credit instruments finds its way into the channels of circulation. The high prices that were fixed for war material and the consequent high prices that ensued generally necessitated an increased volume of working capital in the hands of business men, which working capital is passed into the hands of wage-earners and capitalists as payment for services of labor, capital, and management respectively. The analysis also indicates the ultimate limits of monetary expansion.

V. PRICE STABILIZATION

We may now raise the question, Could a very general increase in prices during the war have been prevented—could the price level have been stabilized? The unequal burdens borne by different classes of society as a result of changes in the price

level make the stabilization of prices a question of unusual pertinency.

Professor Fisher's assumption that the general level of prices is a phenomenon independent of the average of particular prices does not appear to me warranted in the light of the foregoing analysis. At any rate, with the prices of all materials entering directly into war manufacture substantially raised, with the wheat price fixed at a high figure, and with a very general increase in the expenses of production throughout industry, there was undeniably an increase in the average of individual prices, and hence an increase in the cost of living.[1]

But suppose (assuming now the impossible to be possible) that as the index number advanced the dollar had been adjusted so that the number of monetary counters, including bank checks, was not allowed to increase, and hence that prices remained stable. Would this have solved the problem of war finance, or would it have done more harm than good? It seems to me obvious that when the price of iron and steel was fixed at a high level, and when the wages were raised in war industries in order to procure the necessary labor supply, war manufacturers had to have a larger volume of working capital with which to conduct their businesses. It seems to me obvious, also, that a curtailment of the number of monetary counters could not have prevented the high prices in such industries. Granting that a larger volume of working capital was required, and granting that no expansion of the volume of currency was to be allowed, it is apparent that war industry could have secured the necessary large volume of working capital only by a diversion of funds from other industry. But when the influences on the side of cost which were increasing the prices of manufactured goods generally began to be manifest, it would obviously become increasingly difficult for both war and essential peace industry to secure the necessary funds. Only provided a curtailment of nonessential industry could be secured sufficient in amount to release funds equal in volume to the additional funds required by essential industries would it be possible to finance the production that was required.

[1] See p. 698.

A stabilization of prices would not, however, promote the rapid curtailment of nonessential consumption. Indeed the stabilizing of general prices would promote rather than retard nonessential industry; for a rapid rise in the prices of nonessentials was the only effective means (other than rationing) early in the war of checking the flow of funds and of productive energy into such nonessential lines. In consequence, those responsible for the financing of essential industry could not well proceed on the assumption that the funds would be available without any increase in the total volume of circulating medium.

The stabilization of prices is usually invoked in behalf of the laboring classes; for one of the most difficult problems of war is to adjust wages to the changes in the level of prices. Our government adopted the policy in the recent war that in government enterprises wages should be raised proportionally with the increase in prices; and this policy came to be accepted more or less generally by non-government enterprises. This policy seems to me to be quite unsound, at least for the first year or so of a war, because it entirely leaves out of the reckoning, when considering the standard of living of the laborers, the increase in total annual family wages, as outlined above. And it is precisely in government enterprises that the total annual family wages are most increased by these forces. An increase in wage rates equal to the rising price level, coincident with the increase in annual wages due to the causes enumerated, means a substantially increased standard of living for such laborers, the result of which is to divert energy from the production of essentials to the production of nonessentials.[1] This rise in annual wages may be regarded as a form of inflation; and it is particularly vicious in that it serves to divert productive energy to relatively unimportant lines.

After the process of increasing the number of working hours per year by a laborer and his family has reached the limit, however, it is obvious that a continued rise of prices will thenceforth (in the absence of advancing wage rates) result in a progressive

[1] We assume that the increase of real wages is not diverted to the government by taxation or loans.

decrease in the standard of living of the laboring classes. This occurs, however, only after a war has been in progress for something like two years.

In the foregoing consideration of the wage question emphasis has been placed upon those engaged in essentially war enterprises. Other classes of laborers and people on fixed incomes obviously feel the burden of rising prices much earlier. But stabilization of prices could not in any event give us equality of sacrifice in meeting the burdens of war finance.

It does not seem to me, moreover, that even in the later stages of a war of attrition a policy of maintaining the standard of living intact for the laboring classes can be justified on economic grounds. For instance, if wages had been raised in Germany proportionally to the increase in prices during the later years of the war Germany would necessarily have fallen behind in the production of the necessary war supplies. To assume that the laboring classes can escape bearing some of the burden of a war that is waged exclusively by the utilization of internal resources is to assume that the sinews of war can be provided entirely through a reduction in living standards on the part of a mere fraction of the people—the well-to-do who are induced or forced to dispense with customary luxuries—and through a fuller use of the labor and industrial power of the country. In the case of a protracted struggle such an assumption is on the face of things an absurdity.

VI. WAS "INFLATION" UNAVOIDABLE?

It remains to inquire whether, in view of the price situation as outlined in the foregoing pages, it would have been possible to finance the war entirely by the use of taxes, assuming, for the sake of the inquiry, that there were no insurmountable administrative difficulties in connection with the raising by taxation of the enormous volume of funds required.

An exclusive use of taxes would obviously not have prevented a rise in the prices of steel, wheat, etc.; and quite as obviously it could not have prevented much of the resulting price increases in industry generally. When the manufacturer of goods involving the use of iron and steel, whose price had been raised, and involving

the employment of labor whose wages had been increased, found that he needed an additional volume of circulating capital, he necessarily resorted to the banks, as already seen, for such additional capital; and so long as the banks regarded such industry as essential to the winning of the war, it was incumbent upon them to make the additional loans required. It is evident, therefore, that in so far as the increase in the volume of credit currency came from the making of additional loans by the banks to business men, an exclusive use of taxation as a means of war finance would not have prevented an expansion of deposit currency.

But would it not have prevented that increase in circulating medium which was occasioned by the purchase of Liberty bonds by the banks and by the making of loans to individual and corporate purchasers of Liberty bonds? It is obvious enough that if bonds had not been issued this particular process could not have occurred. But the significant question really is, In view of the high prices fixed for war supplies, and the consequently increased volume of working capital required by these industries, could the government have financed the industries with which it was directly associated, and purchased the supplies from those with which it was not directly associated, with the funds afforded by taxes alone?

Such industries, it seems to me, could have been financed only provided the same quantity of funds could have been raised by taxes as by the combination method of taxes and bonds. To have raised the entire amount by taxes alone—assuming this were possible—would have required a curtailment of the funds for ordinary industry equal to the increased volume of funds required by war industry.[1] Assuming that such curtailment of ordinary industry lay exclusively in the nonessential lines, we might conclude that this diversion would be decidedly advantageous. There is no reason to believe, however, that the curtailment would be exclusively in nonessential lines, at least so long as we were relying upon the price mechanism as a means of procuring industrial readjustment. The curtailment would in fact be just as likely to occur in essential as in nonessential lines.

[1] The familiar argument that in the absence of inflation a larger total volume of currency would not have been required is unsound; for it assumes inflation was the cause of the price increases.

It is to be noted, also, that the amount of nonessential industry curtailed would have to be larger in physical volume than the increase in war industry, since the war industry is being conducted on a higher price basis. It is to be noted, finally, that in so far as the exigencies of war call forth an additional volume of production, it would require a still further reduction in the volume of nonessential industry in order to release the funds required by the additional war production.

If the government had not been able to secure the funds required for financing the war by taxation, it is not improbable that, in view of their financial necessities, war industries would have been forced to resort to the banks on their own account more largely than was in fact the case. That is to say, if the additional volume of funds needed had not been forthcoming from the federal Treasury, business would have sought such funds directly from the banks. Hence an increase in the volume of currency would have been brought about by an indirect process.

It has been assumed in the foregoing that it would have been possible for the government to raise the volume of funds required exclusively by taxes, so far as the administrative problems are concerned. This is an assumption, however, that is now recognized to be quite unwarranted. It would no more have been possible to raise by taxation the great volume of funds required as rapidly as required than it would have been possible to have effected the necessary industrial readjustment incident to the curtailment of an enormous volume of nonessential industry as rapidly as would have been required to release the funds necessary for war finance had bond issues not been permitted. As a practical problem, therefore, the Treasury Department could not avoid turning to the use of bond issues. The familiar dictum, "A war cannot be financed without increasing the volume of circulating medium," seems to me entirely sound in the light of the financial requirements of war production.[1]

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[1] Whether credit expansion was in fact carried in the late war to an unnecessary extreme is of course another question.